The Gravity and Extreme Magnetism SMEX mission will be the first mission to catalogue the X-ray polarisation of many astrophysical objects including black-holes and pulsars. This first of its kind mission is enabled by the novel use of a time projection chamber as an X-ray polarimeter. The detector has been developed over the last 5 years, with the current effort charged toward a demonstration of it's technical readiness to be at level 6 prior to the preliminary design review. This talk will describe the design GEMS polarimeter and the results to date from the engineering test unit. >>